U.S.P.T.O. IAP14
OCT 15 2007
PATENT & TRADEMARK OFFICE

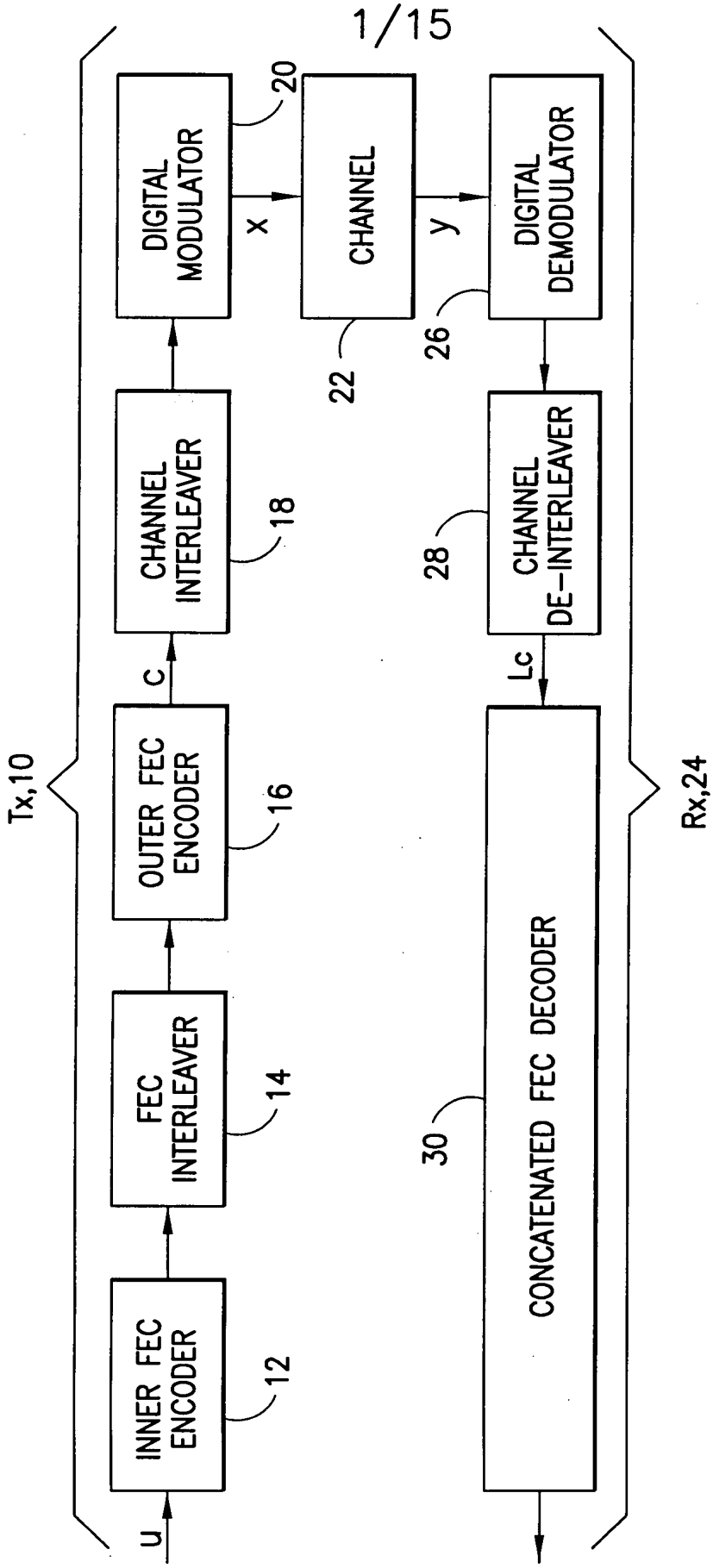


FIG. 1
PRIOR ART

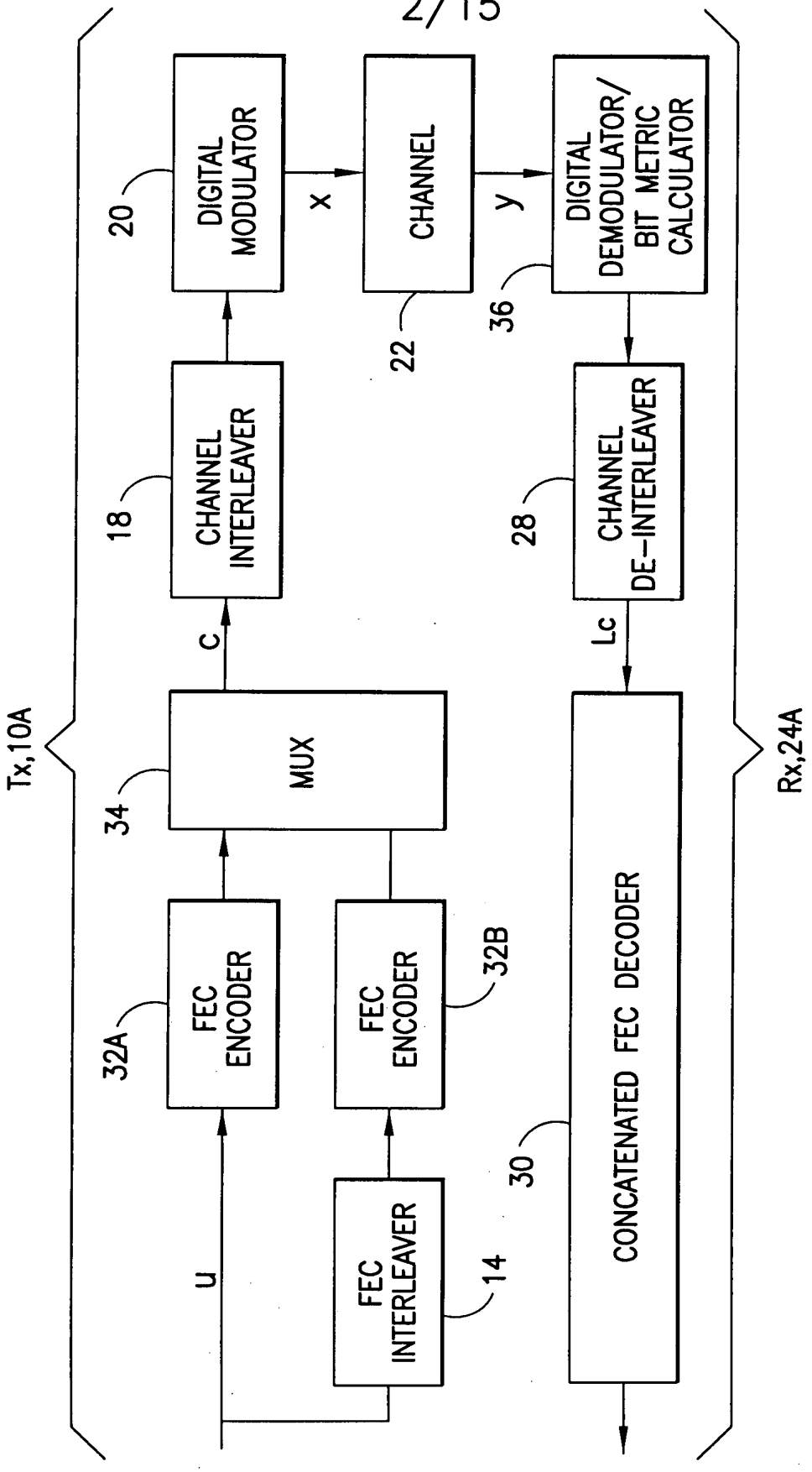


FIG.2
PRIOR ART

FIG.3

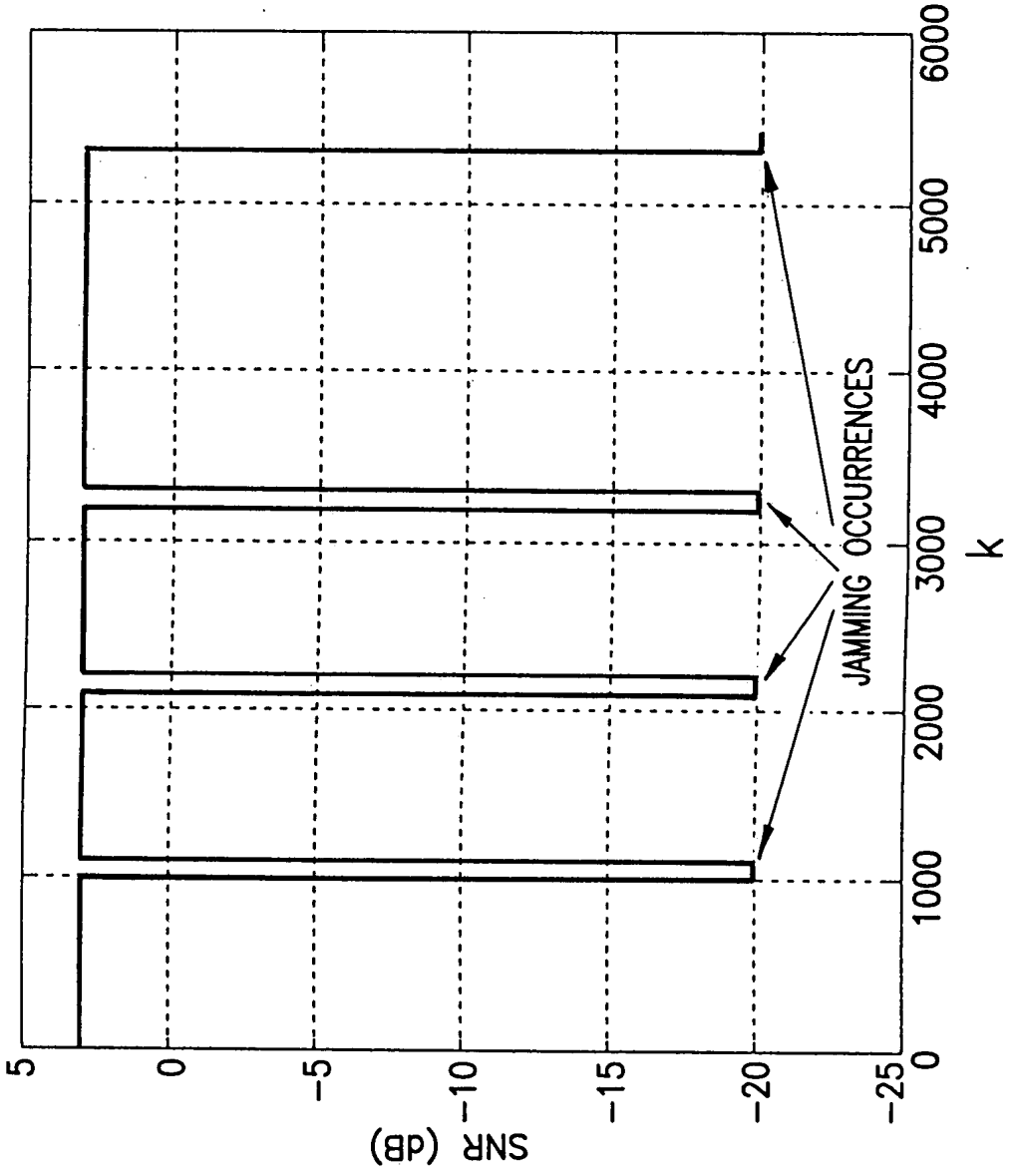

6000
5000
4000
3000
2000
1000
0
k
JAMMING OCCURRENCES
5
0
-5
-10
-15
-20
-25
SNR (dB)

FIG.4

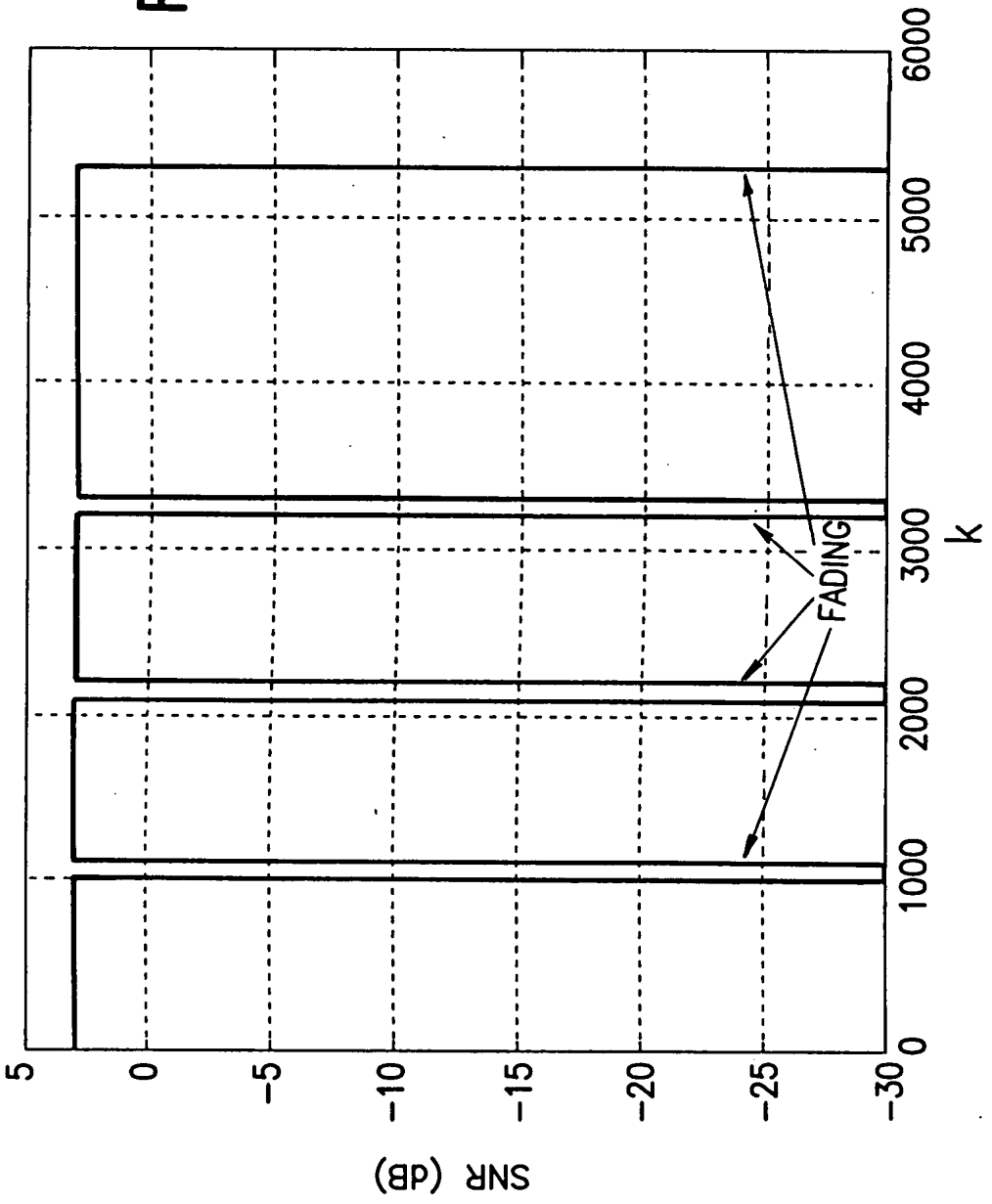

6000
5000
4000
3000
2000
1000
0
k
FADING
5
0
-5
-10
-15
-20
-25
-30
SNR (dB)

FIG.5

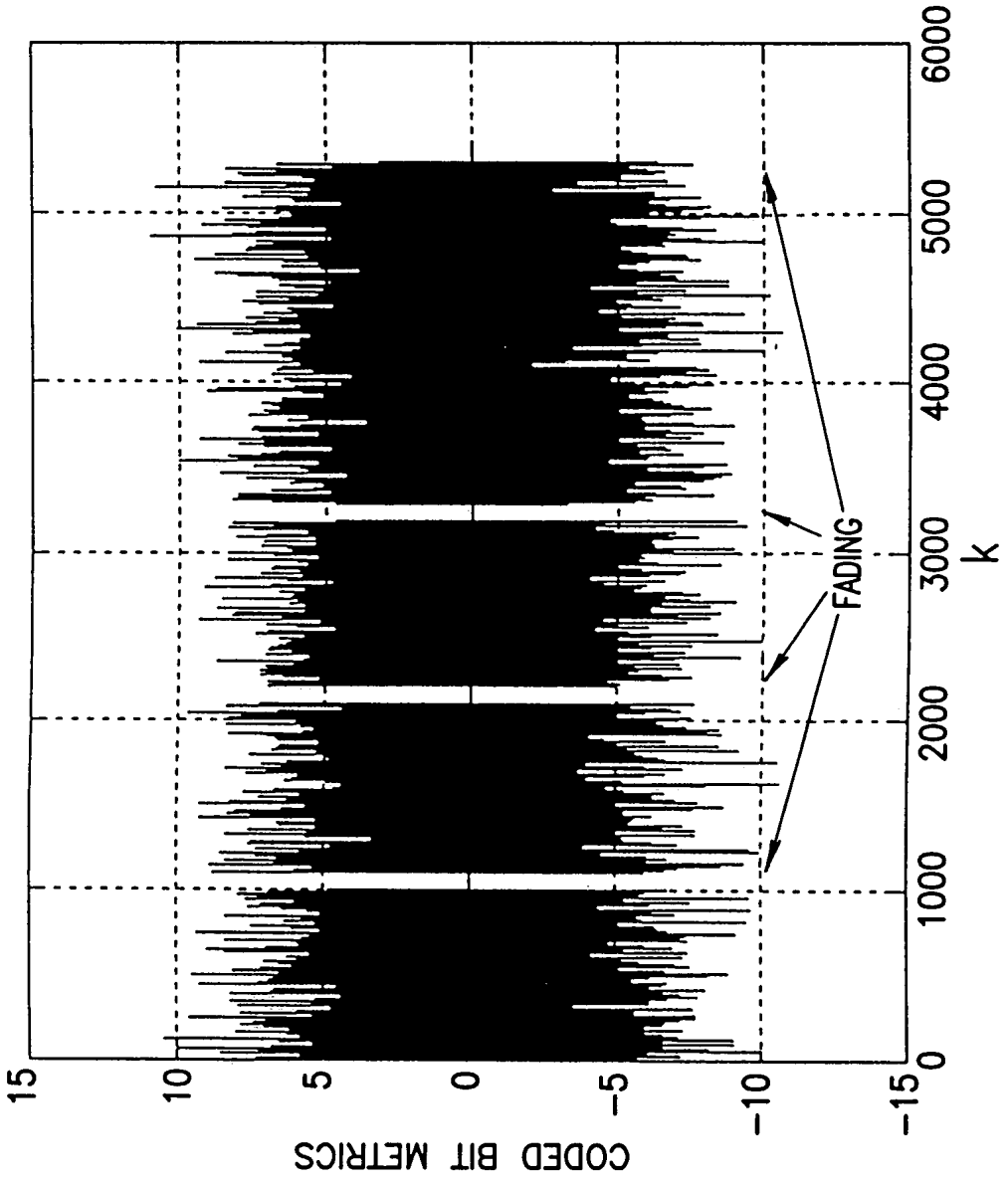
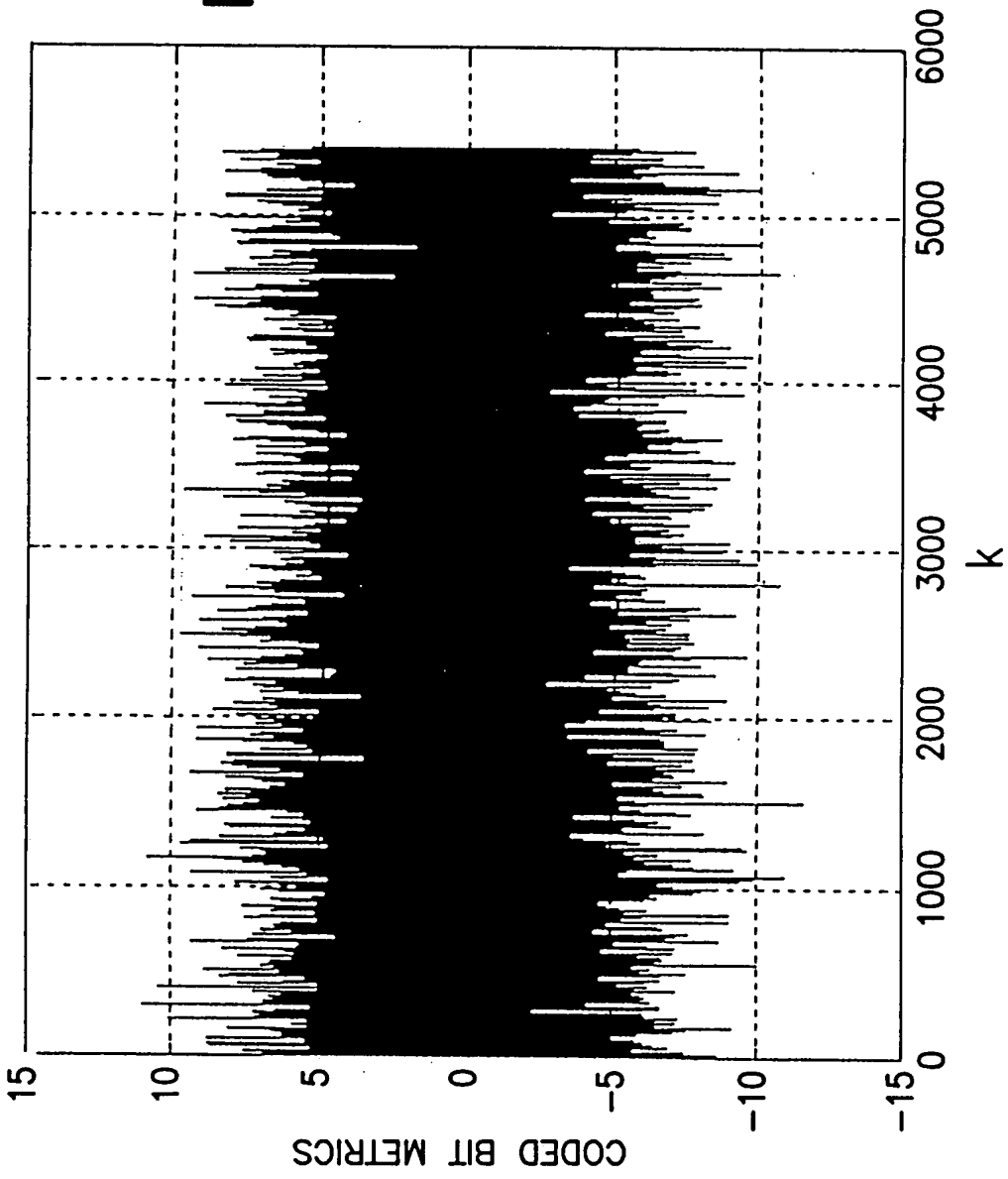

CODED BIT METRICS
15
10
5
0
-5
-10
-15
0
1000
2000
3000
4000
5000
6000
k
FADING

FIG.6


CODED BIT METRICS
15
10
5
0
−5
−10
−15
0
1000
2000
3000
4000
5000
6000
k

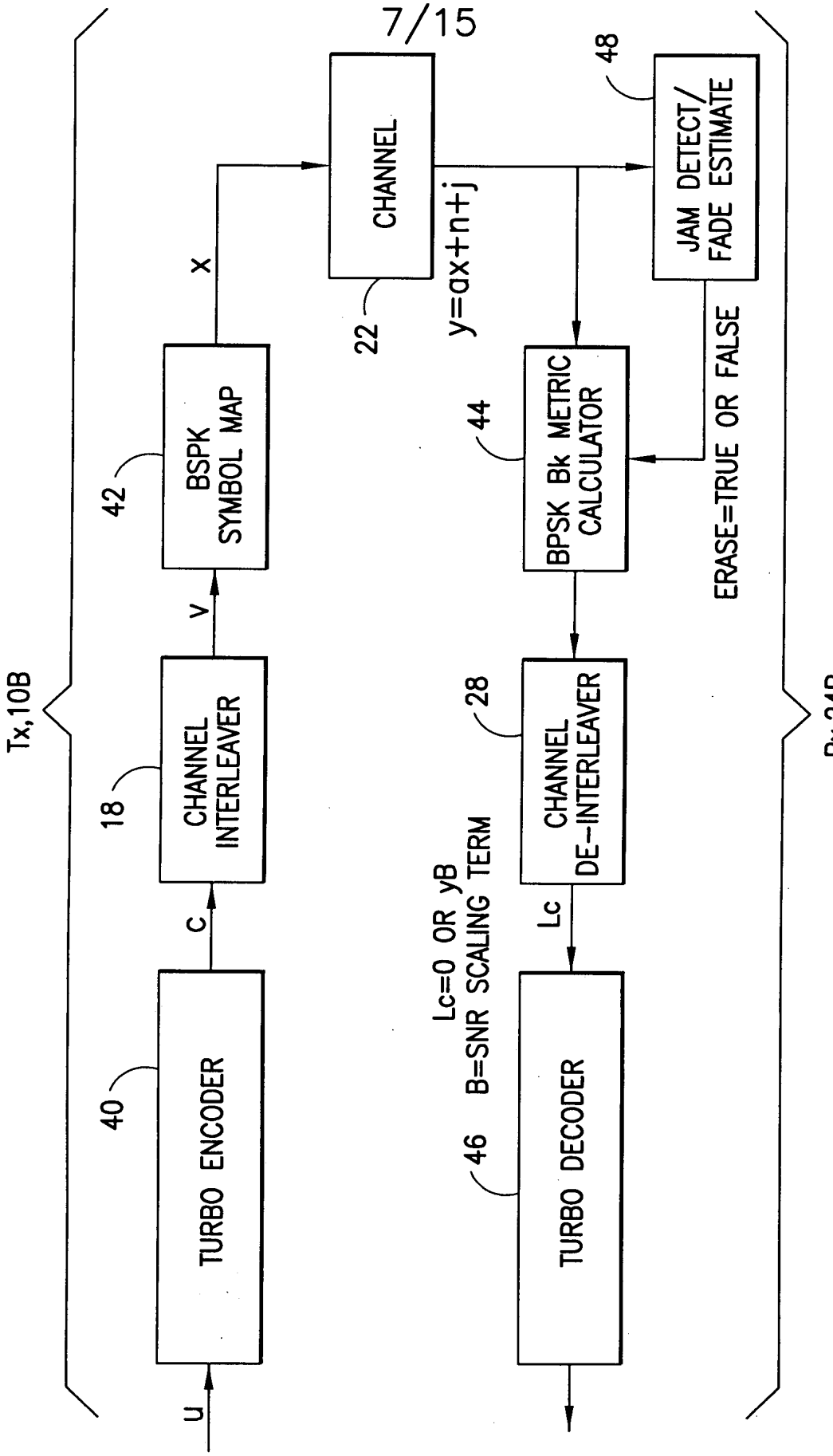

Tx,10B
Rx,24B
TURBO ENCODER
40
u
c
CHANNEL INTERLEAVER
18
v
BSPK SYMBOL MAP
42
x
CHANNEL
22
y=ax+n+j
JAM DETECT/ FADE ESTIMATE
48
BPSK Bk METRIC CALCULATOR
44
ERASE=TRUE OR FALSE
CHANNEL DE-INTERLEAVER
28
Lc
Lc=0 OR yB
B=SNR SCALING TERM
TURBO DECODER
46

FIG. 7

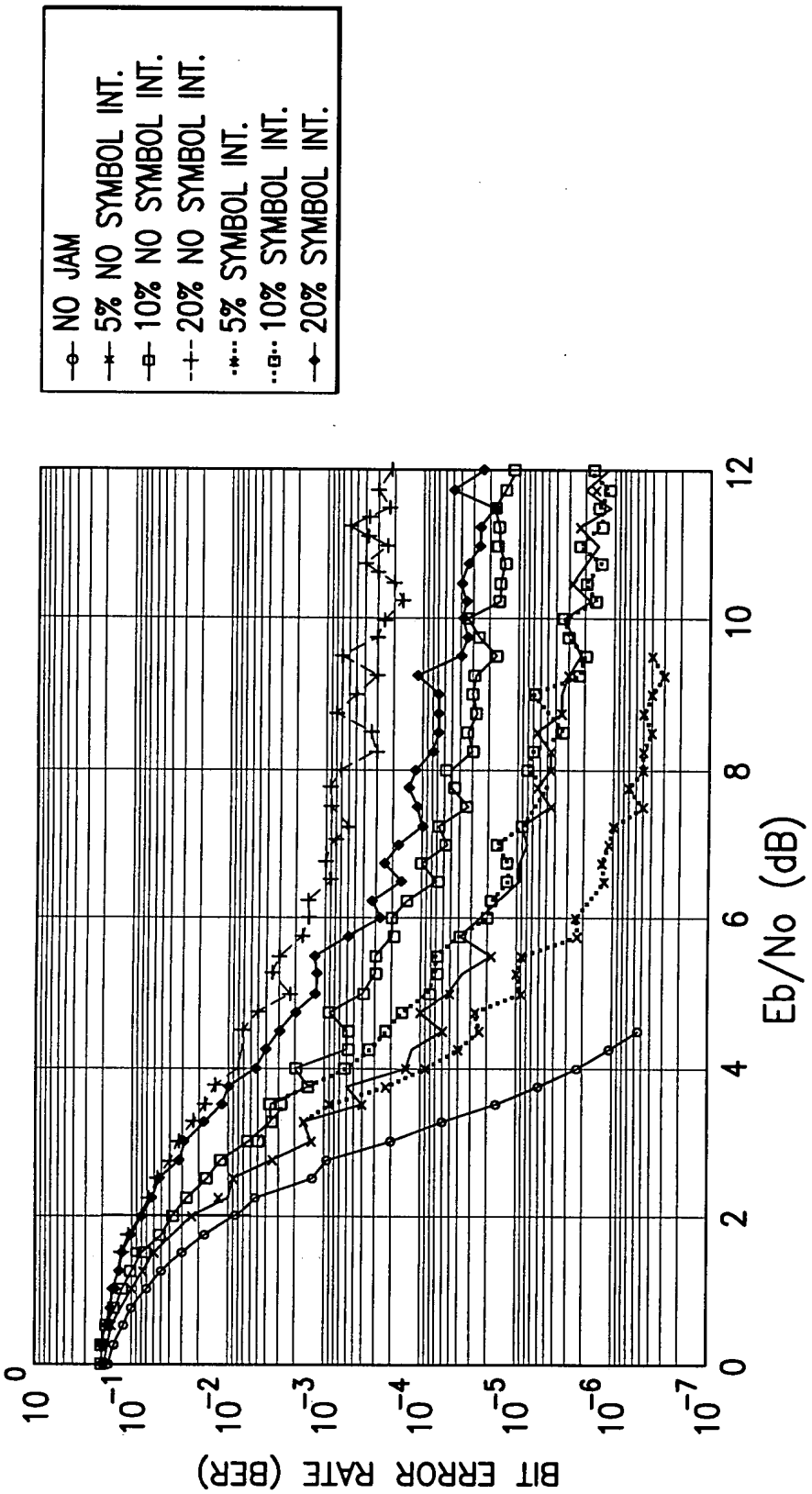

NO JAM
5% NO SYMBOL INT.
10% NO SYMBOL INT.
20% NO SYMBOL INT.
5% SYMBOL INT.
10% SYMBOL INT.
20% SYMBOL INT.
BIT ERROR RATE (BER)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
0
2
4
6
8
10
12
Eb/No (dB)

FIG.8

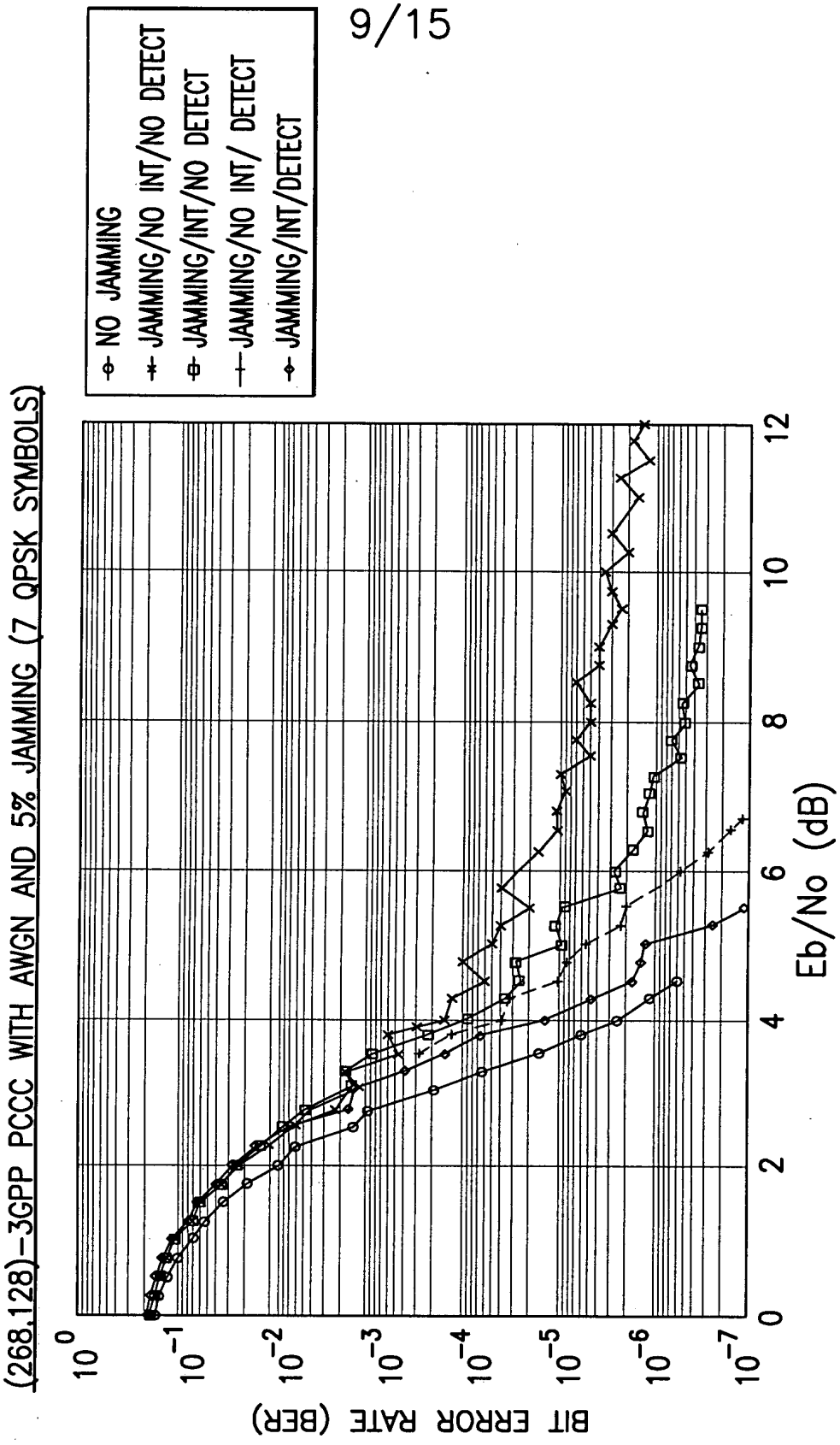

(268,128)-3GPP PCCC WITH AWGN AND 5% JAMMING (7 QPSK SYMBOLS)
NO JAMMING
JAMMING/NO INT/NO DETECT
JAMMING/INT/NO DETECT
JAMMING/NO INT/ DETECT
JAMMING/INT/DETECT
BIT ERROR RATE (BER)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
0
2
4
6
8
10
12
Eb/No (dB)

FIG.9

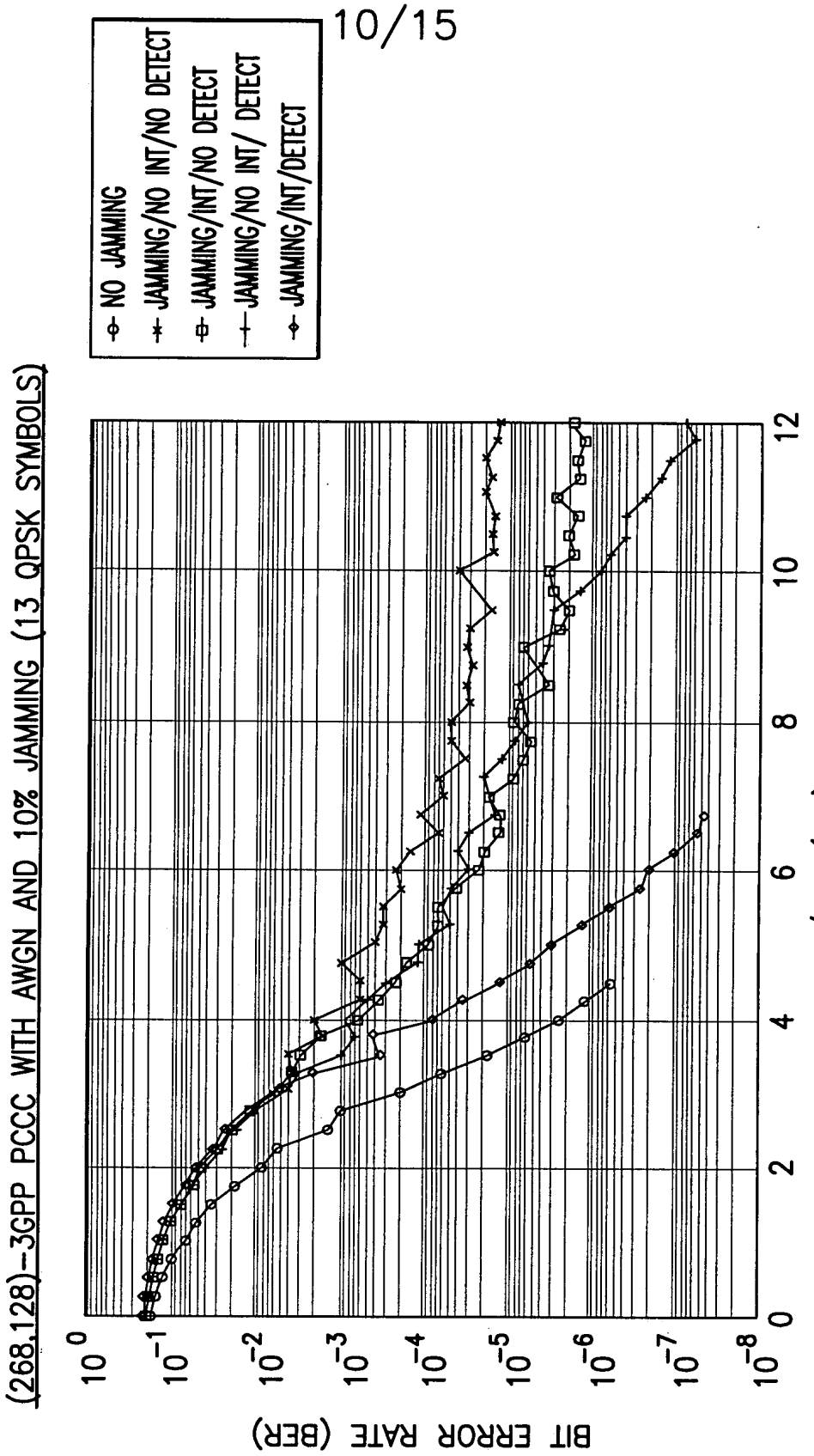

(268,128)-3GPP PCCC WITH AWGN AND 10% JAMMING (13 QPSK SYMBOLS)
NO JAMMING
JAMMING/NO INT/NO DETECT
JAMMING/INT/NO DETECT
JAMMING/NO INT/ DETECT
JAMMING/INT/DETECT
BIT ERROR RATE (BER)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
0
2
4
6
8
10
12
Eb/No (dB)

FIG.10

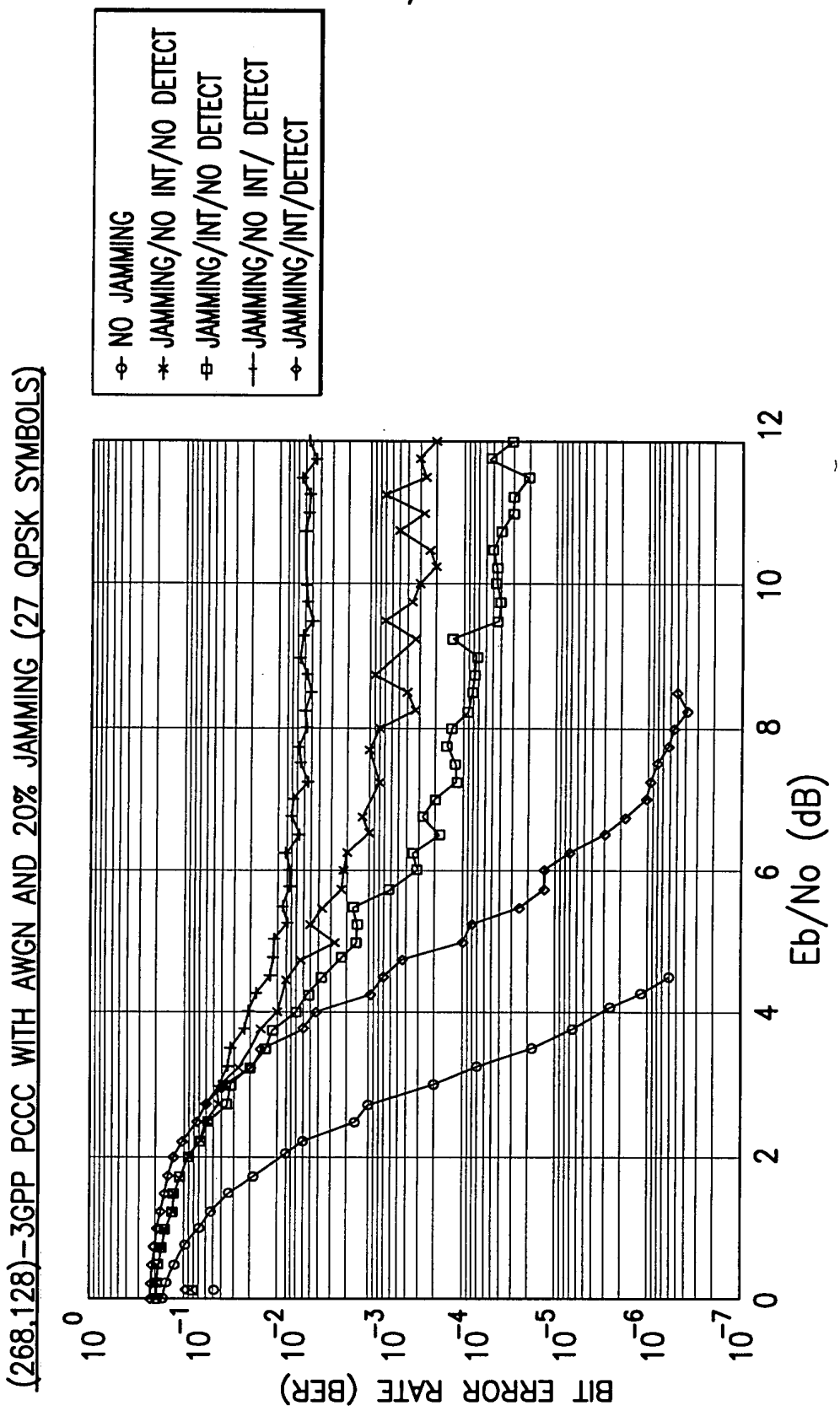

(268,128)-3GPP PCCC WITH AWGN AND 20% JAMMING (27 QPSK SYMBOLS)
NO JAMMING
JAMMING/NO INT/NO DETECT
JAMMING/INT/NO DETECT
JAMMING/NO INT/ DETECT
JAMMING/INT/DETECT
BIT ERROR RATE (BER)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
0
2
4
6
8
10
12
Eb/No (dB)

FIG.11

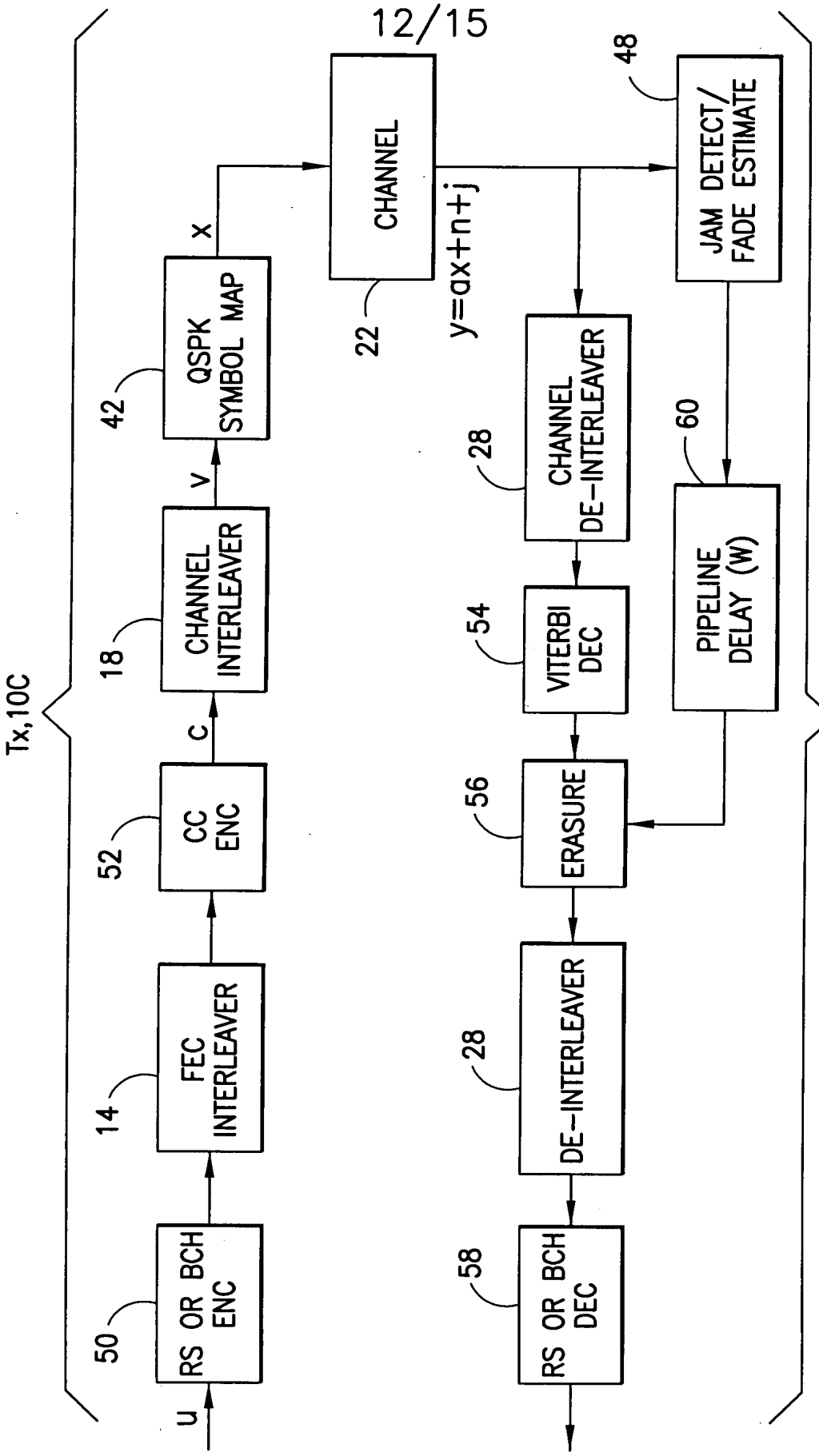

Tx,10C
u
RS OR BCH ENC
50
FEC INTERLEAVER
14
CC ENC
52
c
CHANNEL INTERLEAVER
18
v
QSPK SYMBOL MAP
42
x
CHANNEL
22
y=ax+n+j
JAM DETECT/ FADE ESTIMATE
48
CHANNEL DE-INTERLEAVER
28
PIPELINE DELAY (W)
60
VITERBI DEC
54
ERASURE
56
DE-INTERLEAVER
28
RS OR BCH DEC
58
Rx,24C

FIG.12

FIG.13

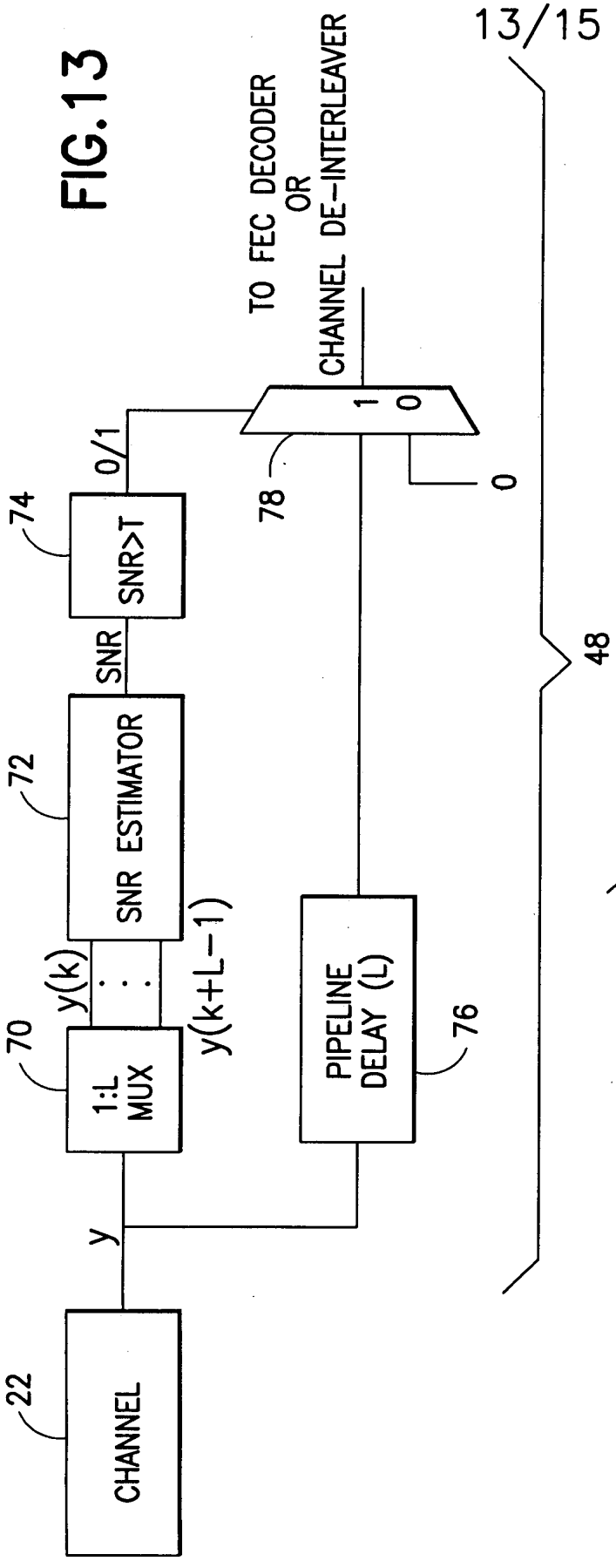

TO FEC DECODER
OR
CHANNEL DE-INTERLEAVER
1
0
78
0
0/1
74
SNR>T
SNR
72
SNR ESTIMATOR
y(k)
y(k+L-1)
70
1:L
MUX
PIPELINE
DELAY (L)
76
y
22
CHANNEL
48

FIG.17

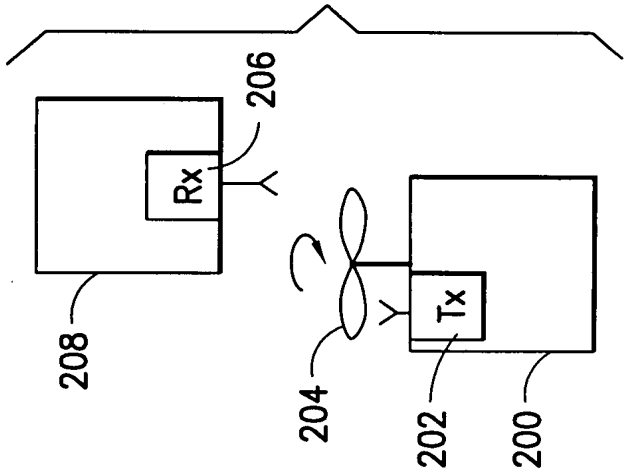

206
Rx
208
204
Tx
202
200

FIG.14

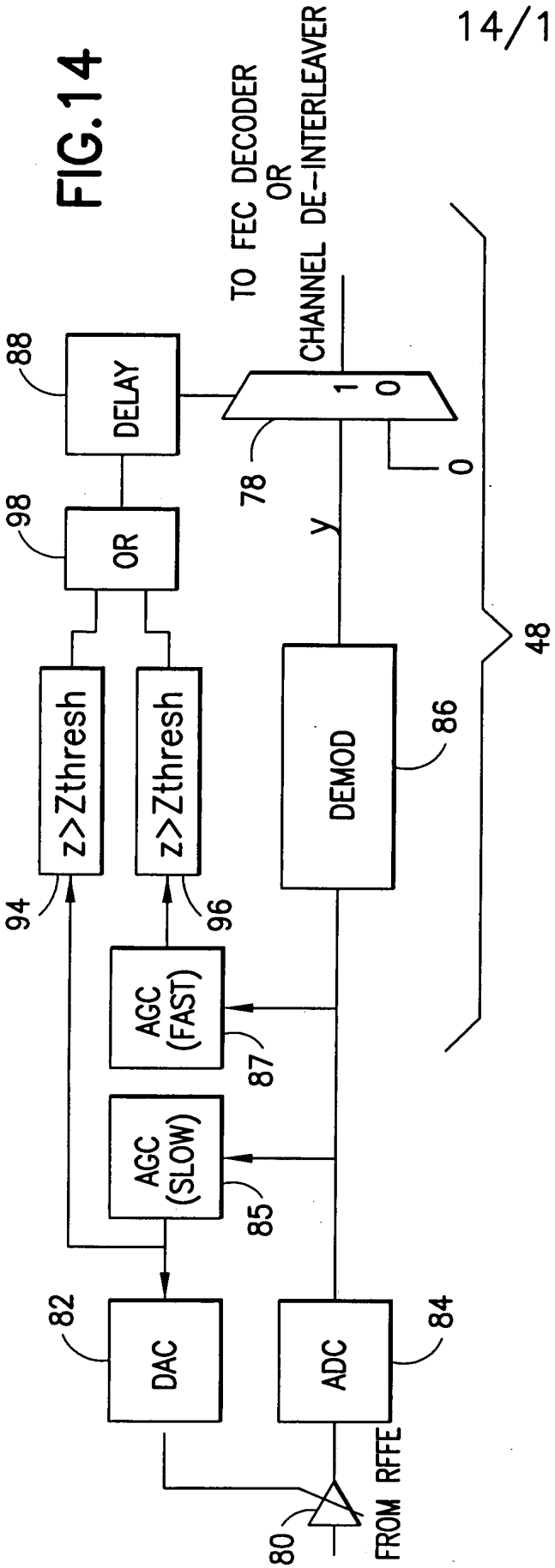
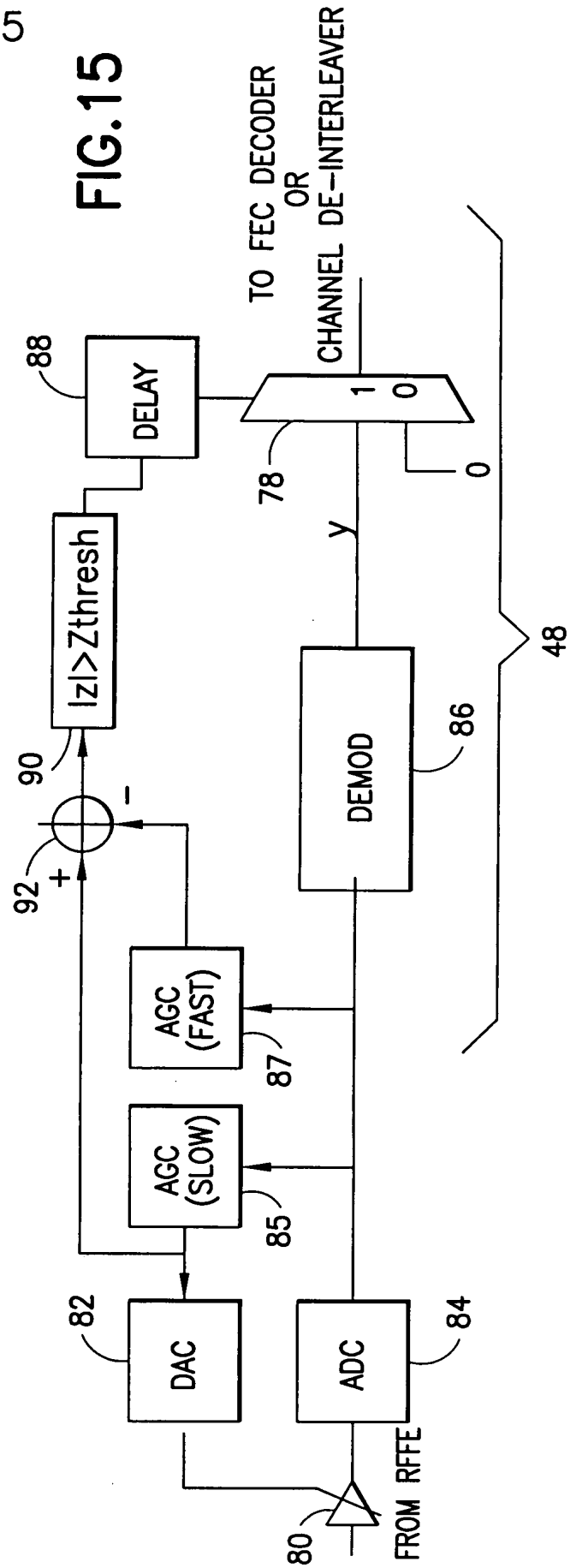

TO FEC DECODER OR CHANNEL DE-INTERLEAVER
DELAY
88
OR
98
z>Zthresh
z>Zthresh
94
96
AGC (FAST)
AGC (SLOW)
87
85
DEMOD
86
78
y
1
0
0
48
DAC
ADC
82
84
80
FROM RFFE

FIG.15


TO FEC DECODER OR CHANNEL DE-INTERLEAVER
DELAY
88
|z|>Zthresh
90
92
+
-
AGC (FAST)
AGC (SLOW)
87
85
DEMOD
86
78
y
1
0
0
48
DAC
ADC
82
84
80
FROM RFFE

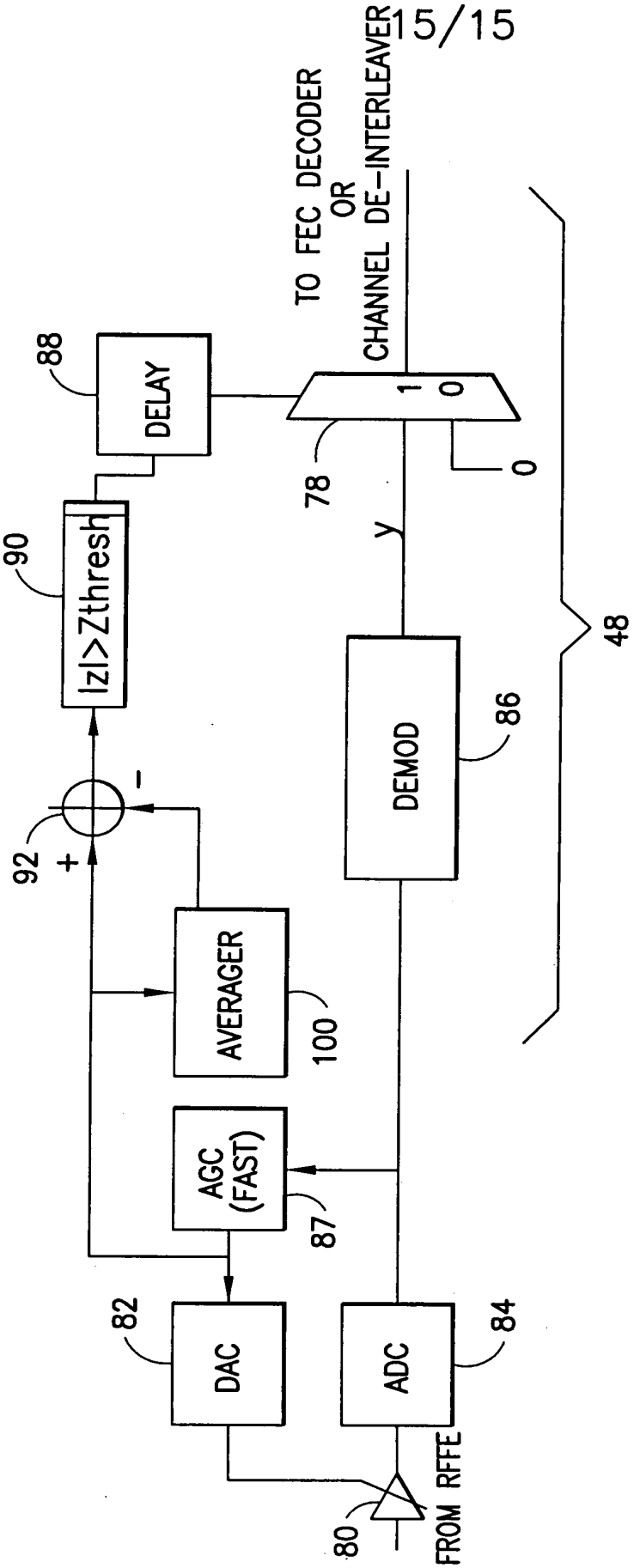

TO FEC DECODER
OR
CHANNEL DE-INTERLEAVER
88
DELAY
1
0
78
0
y
90
|z|>Zthresh
48
DEMOD
86
92
+
-
AVERAGER
100
AGC
(FAST)
87
82
DAC
ADC
84
80
FROM RFFE

FIG.16